

Remarks

Applicants respectfully request reconsideration of the above-identified application in view of the present amendment and the following remarks.

Claims 1-16 were pending. By this paper, Applicants have amended claims 1, 3, 5-7, 9, 12 and 14-16, and rewrote claims 8, 10, 11 and 13 as new claims 17-20, respectively. No new matter has been introduced by virtue of the present amendment. After entry of this amendment, claims 1-7, 9, 12 and 14-20 will be pending.

Applicants note, with appreciation, the indication of allowability of claims 8-13. Claims 8, 10, 11 and 13 were canceled and rewritten as new claims 17-20, respectively. Claim 9 was amended to depend from claim 17 and claim 12 was amended to depend from claim 19. Accordingly, claims 9, 12 and 17-20 are allowable.

Claims 1-16 were rejected under 35 U.S.C. § 112, second paragraph. Claims 1, 3, 5-7, 9, 12 and 14-16 have been amended to overcome the 35 U.S.C. § 112, second paragraph, rejection. Furthermore, new claims 17-20 were drafted with the 35 U.S.C. § 112, second paragraph, rejection in mind. Accordingly, Applicants submit that all of the pending claims are definite and, as such, respectfully request withdrawal of the 35 U.S.C. § 112, second paragraph, rejection.

Claim 1 was rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,947,179 to Kinane et al., hereinafter *Kinane*, in view of U.S. Patent No. 6,296,043 to Bowen et al., hereinafter *Bowen*. Applicants respectfully traverse the present rejection.

The present invention provides a method for post treating a spray formed deposit to achieve stress control by causing metallic phase transformations a substantially homogenous distribution of commingled metallic phases consisting of predetermined

proportions of bainite phase and martensite. This effect is brought about by manipulation of the post-forming substrate temperature and/or the post-forming spray-forming cell environment temperature. The relative amounts of these two phases is particularly important because bainite is softer and tougher, while martensite is harder and more expansive. (Specification, ¶ 57.)

Claim 1 recites a method for implementing post-heat treatment during spray forming to achieve stress control in the manufacture of a spray formed metallic tool which comprises applying a metallic spray-forming material at a preselected application temperature upon a mold substrate heated to a preselected substrate temperature disposed within a spray forming cell environment heated to a preselected spray forming cell environment temperature in the manufacture of a spray-formed tool and causing preselected substantially homogenous metallic phase transformations from an austenite phase of the spray forming material to a substantially homogenous distribution of commingled metallic phases consisting of a predetermined proportion of at least one of a bainite phase, a pearlite-ferrite phase, and a martensite phase of the spray forming material, wherein the substantially homogenous metallic phase transformations are caused at least in part via manipulation of at least one of the substrate temperature and the spray forming cell environment temperature.

The prior art does not disclose, teach or suggest the present invention. Applicants respectfully submit that *Kinane* has been mischaracterized. The Office Action states that the *Kinane* reference teaches “applying a metallic spray-forming particles . . . [under certain conditions] . . . for the purpose of controlling diffusion based reaction, homogeneous volume changes and stress control in the microstructure of steel having metallic phases including bianite phase in a spray-formed metallic article.” (Office Action, pages 2-3, emphasis added.) Specifically, *Kinane* discloses creating one of two microstructures — either a coarse bianite or a fine bianite microstructure. (Col. 6, lines 3-6.) This is different from the present invention. *Kinane* does not teach, disclose or suggest creating a distribution of commingled metallic phases.

The Examiner acknowledges that the *Kinane* reference fails to teach the use of a preselected spray-forming cell environment temperature during application of the spray-forming material. The Examiner attempts to overcome this deficiency by combining *Kinane* with *Bowen*. However, even if *Kinane* and *Bowen* could be combined, *Bowen* does not cure the deficiencies of *Kinane*. Specifically, *Bowen* does not disclose, teach or suggest creating a substantially homogeneous distribution of commingled metallic phases. Accordingly, even were *Kinane* and *Bowen* to be combined as the Examiner suggests, elements of the present invention would still be missing in the resulting combination.

Accordingly, claim 1 is patentable and Applicants respectfully request withdrawal of the rejection. Claims 2-7, 9, 12 and 14-16 all depend either directly or indirectly from claim 1 and are therefore patentable for at least the same reasons as claim 1. Moreover, these claims add further limitations which render them separately patentable.

Claims 3, 6, 7 and 15-16 were rejected under 35 U.S.C. § 103 as being unpatentable over *Kinane* in view of *Bowen* and further in view of Jordan et al., hereinafter *Jordan*. As discussed above, these claims all depend from claim 1 and are therefore patentable for at least the same reasons as claim 1. Furthermore, the rejection of these claims is based upon the combination of *Kinane* and *Bowen*. As discussed above, this combination, even were it a proper combination, does not disclose, teach or suggest all of the elements of claim 1. Furthermore, there is nothing in *Jordan* that cures the defects in the combination of *Kinane* and *Bowen*. Accordingly, Applicants respectfully request that this rejection be withdrawn.

Lastly, in compliance with the duty of disclosure, we are enclosing a Supplemental Information Disclosure Statement to inform the Patent Office of references cited in a foreign counterpart application. As set forth in the attached Information Disclosure Statement, the citation of these references is not to be construed as an admission of materiality of any of the references.

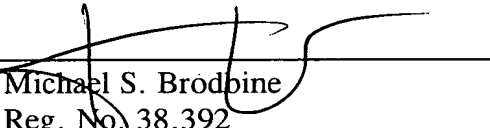
Applicants submit that the claims are in a condition for allowance and respectfully requests a notice to that effect. If the Examiner believes that a telephone conference will advance the prosecution of this application, such a conference is invited at the convenience of the Examiner.

The Commissioner is hereby authorized to charge the additional filing fee of \$266.00 (\$86.00 additional claim fee and \$180.00 Information Disclosure Statement Fee) and any fee deficiencies associated with filing this paper to the Deposit Account of Applicants' assignee, Ford Global Technologies LLC, Deposit Account No. 06-1510 — a duplicate of this amendment transmittal is enclosed for that purpose.

Respectfully submitted,

ALLEN DENNIS ROCHE et al.

By


Michael S. Brodine

Reg. No. 38,392

Attorney for Applicant

Date: April 20, 2004

BROOKS KUSHMAN P.C.
1000 Town Center, 22nd Floor
Southfield, MI 48075-1238
Phone: 248-358-4400
Fax: 248-358-3351